MONTANA
CHRONIC DISEASE PREVENTION AND HEALTH PROMOTION BUREAU

Upcoming Events

May 17 — Arthritis and Agriculture: Cultivating a Healthy Montana Workshop, Missoula, MT (contact: Carrie Strike cstrike@arthritis.org)

June 8 — Arthritis Town Hall Meeting, Kalispell, MT (contact: Carrie Strike cstrike@arthritis.org)

June 15-16 — Asthma educator certification and recertification review course, Great Falls, MT (contact: Katie Loveland kloveland@mt.gov)

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MONTANA Department of Public Health & Human Services

Trends in Preventive Care Practices Among Adults with Diabetes, Montana, 2000-2010

Introduction

In 2010, an estimated 25.8 million Americans had diabetes, and of those an estimated seven million cases had not been diagnosed.[1] The Centers for Disease Control and Prevention (CDC) estimates 1.9 million people aged 20 years or older were newly diagnosed with diabetes in 2010 alone.[1] In 2010, the prevalence of diagnosed diabetes among adults in the US was 11.3% compared to 7.3% in 2000, an increase of 54.8%.[2,3] In 2010, the Montana prevalence of diagnosed diabetes among adults was 7.0% vs.4.9% in 2000, an increase of 42.9%.[2,3] The number of adult Montanans with diagnosed diabetes has risen to approximately 53,600 in 2010, up from about 33,000 in 2000.[2,3] Preventive care practices for adults with diabetes are of high importance, especially since they can reduce dangerous complications and the disease burden for those with diabetes.[4]

To identify needs and potential opportunities to improve preventive care in Montana, data from the Behavioral Risk Factor Surveillance System (BRFSS), a state-based, random digit-dialed telephone survey of non-institutionalized US individuals, aged 18 years and older, were used to describe the delivery of key preventive services among adult Montanans with diabetes (2000-2010) and US adults with diabetes (2009). Specifically, the American Diabetes Association (ADA) recommendations on preventive care practices (Table 1), which are assessed as part of the BRFSS survey, were chosen as indicators for this report. To benchmark the trends, the report also describes progress towards Healthy People (HP) 2010 and 2020 diabetes goals.[5]

Methods

The BRFSS survey is conducted each year in all 50 states, as well as the District of Columbia, and the US territories of Guam, Puerto Rico and the US Virgin Islands. Respondents were defined to have diabetes if they answered "*yes*" to the question *"Has a doctor ever told you that you had diabetes?"* Women who stated they had diabetes only during pregnancy (gestational diabetes) were not considered to have diabetes. Respondents who indicated they had been previously diagnosed with diabetes were asked additional questions about diabetes-related preventive care practices (Table 1).

All BRFSS data for this report were obtained from the *Diabetes Data and Trends* page on the CDC website.[6] Data were previously weighted to reflect the age, sex and racial/ethnic distribution in each state. The 2000 US Standard Population was used to age adjust the estimates. Prevalence estimates for the US are based on a single year, while in Montana three-year moving averages (an average of the year indicated, and the previous two years) were used to improve the accuracy of the annual preventive care practice estimates. For the US, age-adjusted rates for selected preventive care practices are also presented for 2009 . For Montana, age-adjusted rates and 95% confidence intervals (CI) for each of the seven indicators are displayed for each year, from 2000 to 2010.

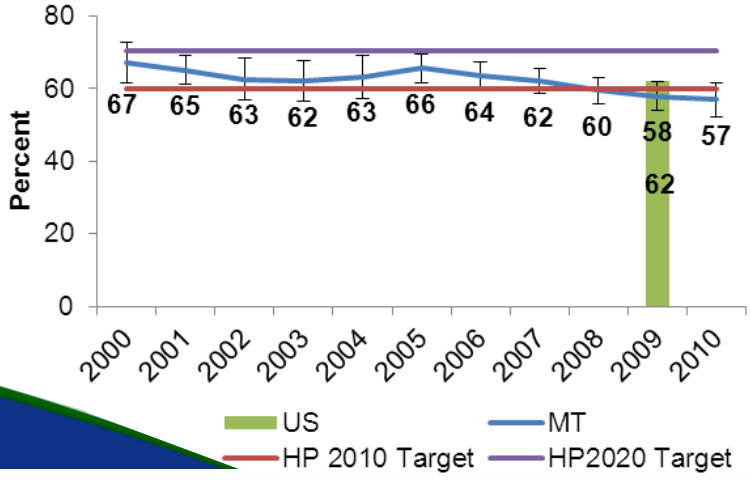
Table 1. The American Diabetes Association (ADA) recommendations on preventive care practices for diabetes and pertinent Behavioral Risk Factor Surveillance System (BRFSS) questions.

ADA Recommendations[4]	BRFSS Questions[2]
Self-monitoring of blood glucose two to three times daily	*"About how often do you check your blood for glucose or sugar?"*
A1c tests conducted twice annually	*"A test for hemoglobin A1c measures the average level of blood sugar over the past three months. About how many times in the past 12 months has a doctor, nurse, or other health care professional checked you for A1c?"*
Annual comprehensive foot examinations	*"About how many times in the last year has a health professional checked your feet for any sores or irritations?"*
Dilated retinal eye examination within five years of first being diagnosed (and one annually every year after)	*"When was the last time you had an eye exam in which the pupils were dilated?"*
Diabetes education training (skills based)	*"Have you ever taken a course or class in how to manage your diabetes yourself?"*
Annual influenza vaccination	*"During the past 12 months, have you had a flu shot?"*
If vaccinated prior to age 65, then a second dose after age 65	*"Have you ever had a pneumococcal vaccination?"*

Results

Self-monitoring blood glucose (SMBG)– The percentage of Montanans with diabetes who reported SMBG at least once daily was above or equal to the HP2010 target of 60% (Figure 1).Rates in both Montana and the US were below the HP2020 target of 70.4%.

Figure 1. Age–adjusted rate (95% CI) for self-monitoring of blood glucose at least once daily, MT (2000-2010) and US (2009).



A1c testing– The percentage of Montanans with diabetes who reported A1c testing at least twice per year was greater than the HP2010 target of 50%, but lower than HP2020 target of 71.1% (Figure 2). In 2009 and 2010, 68% of Montana respondents reported having their A1c checked at least twice a year, similar to the US rate of 69%.

Foot exams– The proportion of Montanans with diagnosed diabetes reporting having annual foot examinations remained stable from 2005 to 2010 at just under the HP2010 target of 75% and HP2020 target of 74.8% (Figure 3). The rate of annual foot exams in the US was 67% in 2009.

Dilated retinal exams– From 2000 to 2010, the rates for dilated retinal examinations in Montana were lower than the HP2010 target of 75%, yet greater than the new HP2020 target of 58.7% (Figure 4). In 2009, the Montana rate was equal to the US rate for having an annual retinal examination at 63%.

Diabetes self-management training– In 2010, 63% of respondents in Montana reported having taken a course in diabetes management; the HP2010 target was 60% and the HP2020 target is 62.5% (Figure 5). The US rate for having a diabetes self-management course was 56%.

Influenza and pneumococcal vaccination– Among Montanans with diabetes in 2010, influenza and pneumococcal vaccination rates were 61% and 59%, respectively (Figures 6 and 7). Both the HP2010 and new HP2020 targets for high-risk adults aged 18 and older are 90% for influenza vaccination, and 60% for pneumococcal vaccination.[5] The rate of influenza vaccination in Montana have fallen short of HP2010 targets over the past 10 years by a wide margin; the HP2010 goal is 90% of adults with diabetes receiving an annual influenza vaccination, while in 2010 only 61% received an annual influenza vaccination in Montana. It is recommended that diabetes patients who received pneumococcal vaccination prior to age 65 should receive a second dose after age 65. The Montana rate of pneumococcal vaccination is approaching the HP2010 goal of 60%, and in 2009 was greater than the US rate of 43%.

Figure 2. Age-adjusted rate (95% CI) for A1c testing at least twice in the last year, MT (2000-2010) and US (2009).

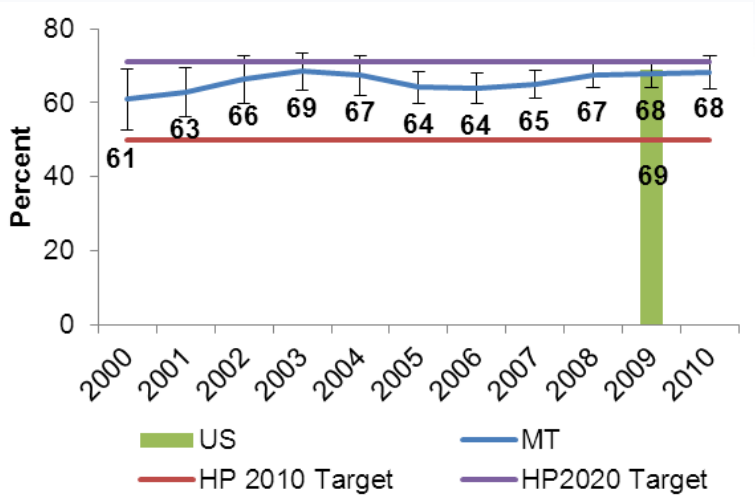
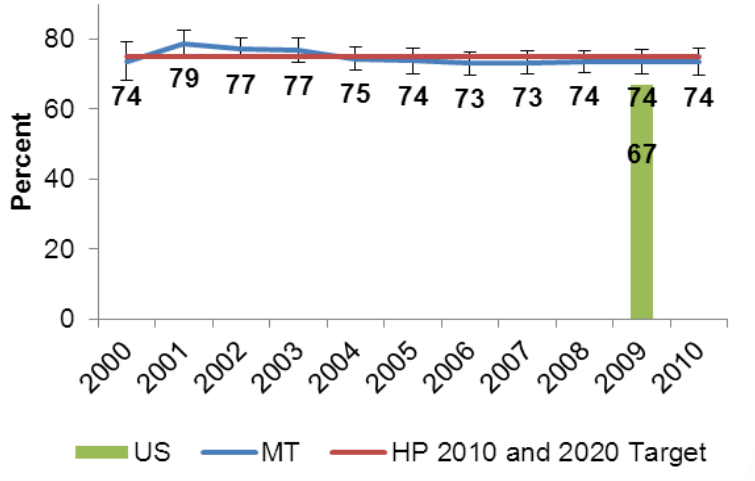


Figure 3. Age-adjusted rate (95% CI) for annual foot examinations, MT (2000-2010) and US (2009).



Discussion

Figure 4. Age-adjusted rate (95% CI) for annual dilated retinal examination, MT (2000-2010) and US (2009).

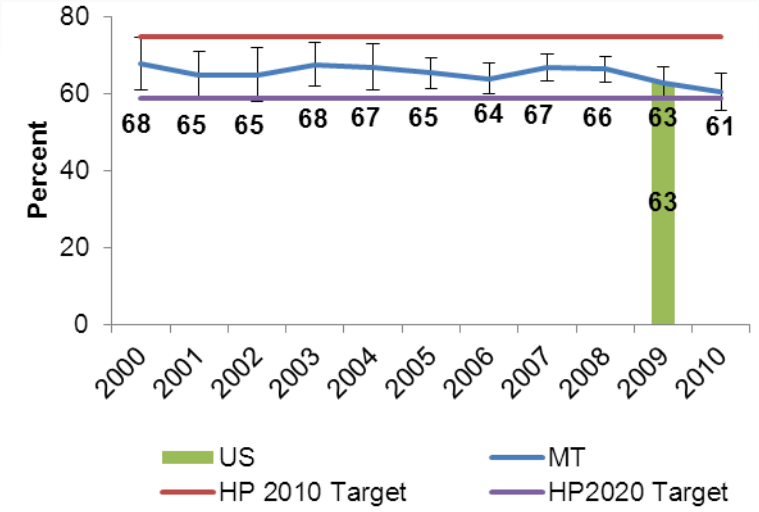
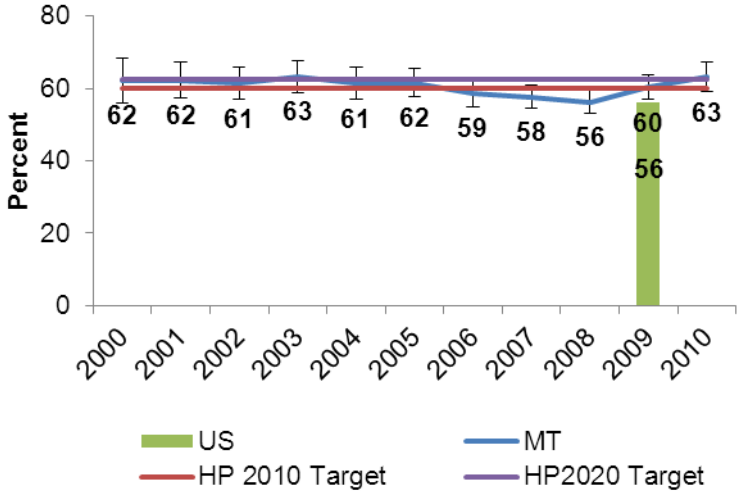


Figure 5. Age-adjusted rate (95% CI) for attendance in diabetes management classes, MT (2000-2010) and US (2009).



Our findings suggest that the proportion of adults receiving the ADA recommended diabetes preventive care services has remained relatively unchanged over the past decade. In 2010, Montana achieved five of the seven HP2010 targets and five, although not the same five, of the HP2020 targets. These findings indicate that there are opportunities to improve the quality of care for Montanans living with diabetes.

There are at least four limitations to our findings. First, the information from the BRFSS survey is self-reported and is subject to recall bias. Second, the BRFSS survey is telephonic and does not necessarily reflect the experiences of Montana residents without telephones. Third, BRFSS data are collected from non-institutionalized adults 18 years and older, and results cannot be generalized to residents of institutions (e.g., prisons, university residence halls, nursing homes). Finally, the analyses use three-year averages for the single year percent estimates, which tends to smooth trend lines and may exaggerate already flat trends.

Despite these limitations, there appears to be strong need to implement quality improvement (QI) initiatives targeting diabetes preventive care practices if we are to meet or exceed the HP2020 goals. One opportunity to do so would be to increase use of the Diabetes Quality Care Monitoring System (DQCMS), a computer based software tracking system, which allows primary care practices to monitor the care of patients with diabetes (http://www.risprojects.org/dqcms).

DQCMS allows clinicians to identify and track individuals for each of the seven ADA recommended diabetes preventive care practices along with other important clinical outcomes including blood glucose and hypertension control. Currently 50 sites in Montana are utilizing DQCMS to monitor and improve diabetes care. In addition, the Montana DPPHS provides support to practices interested in implementing strategies to improve the quality of diabetes care.

Diabetes self-management education (DSME) is critical to ensure that patients with diagnosed diabetes have the skills to manage their condition. Providers are encouraged to refer patients with diabetes to certified diabetes educators (CDEs) and DSME programs in Montana. There are currently 84 CDEs and 28 recognized DSME programs across the state (http://www.diabeteseducator.org/DiabetesEducation/Find.html). The American Association of Diabetes Educators (AADE) developed the AADE7 Self-Care Behaviors™ framework for the desired behavior change outcomes of diabetes education (Table 2).[8]

Acknowledgements

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Figure 6. Age-adjusted rate (95% CI) of influenza vaccination, MT (2000-2010) and US (2009).

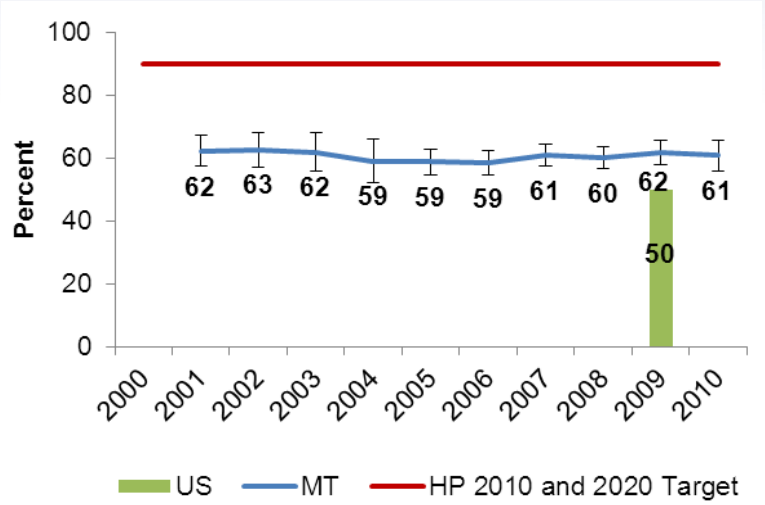

Figure 7. Age-adjusted rate (95% CI) for one lifetime pneumococcal vaccination, MT (2000-2010) and US (2009).

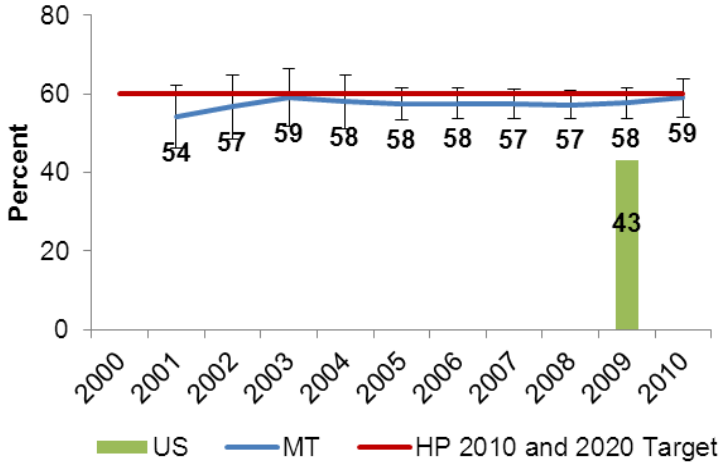

Table 2. AADE7 Self-Care Behaviors™
1. Healthy Eating
2. Being Active
3. Self-Monitoring
4. Taking Medication
5. Problem Solving
6. Reducing Risks
7. Healthy Coping

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Report Highlights

- **Essential preventive care practices for adults with diabetes.**
- **Clinical recommendations to improve the quality of diabetes care.**
- **The prevalence of receiving diabetes preventive care services in MT (2000-2010) and the US (2009) compared to Healthy People 2010 and 2020 objectives.**

Clinical Recommendations

- Provide preventive care services to patients with diabetes according to the American Diabetes Association clinical recommendations.
- Monitor diabetes preventive care practices among patients with diabetes.
- Implement strategies to improve the quality of diabetes care.
- Refer persons with diabetes to CDEs and DSME programs for support in disease management.